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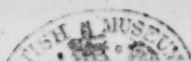
THE HORSE AND ITS HISTORIANS.

BY THE EDITOR.

IF we consider its antiquity as a domesticated animal, and its great utility to man—greater, perhaps, than that of any other species—it is not surprising that the Horse should have furnished a theme for writers in all ages and in every civilised country. The works which have been written on its natural history, anatomy, and physiology; its dentition, diseases, and cures; its use and treatment in relation to agriculture, cavalry, hunting, and racing; with treatises innumerable on equitation, breaking, training, and stable management; bits and bridles, saddles, and harness of every description—would form a library of no mean proportions. And should anyone feel disposed to collect all the works that have been written relating to the Horse, he would have to provide shelf-room for at least 4000 volumes.

We have been at the pains to count the titles quoted in the most recent bibliography on the subject,* and find that, exclusive of editions and translations, there have appeared since the days of Xenophon (B. C. 380) down to the issue of the volumes on Hunting and Racing in the 'Badminton Library' (A. D. 1886), no less than 3800 works in eighteen different languages. We have been at the further trouble to apportion the titles of all these

* 'Works on Horses and Equitation: a Bibliographical Record of Hippology.' By F. H. Huth. Sm. 4to, pp. 440. London: Quaritch. 1888.



works (which in the bibliography referred to are quoted chronologically) amongst the nations which have produced them, with a view to ascertain as nearly as may be in what proportions each has contributed to the literature of the subject. The result is rather curious. The earliest works are in Greek, beginning with that of Kimon of Athens (B. C. 430) on the Veterinary Art, and including the well-known (and, for the time they were written, really excellent) treatises by Xenophon (B. C. 380) on Horsemanship and on the duties of a Commander of cavalry (first printed at Florence in folio in 1516) besides the veterinary work of Hippocrates, the remarks on the Horse in Aristotle's General History of Animals, and the little-known treatises of such writers as Sextus Julius Africanus (A. D. 225), and Ammianus Marcellinus (A. D. 360), many of them only fragments, and first made known through Latin translations. No modern Greek author appears to have written on the Horse, and amongst the ancients we find but seven names of Greeks who have contributed to the literature of this subject. Works in Latin, though rather more numerous—and some of them, like those of Pliny and Aldrovandus, better known—do not exceed twenty-six, of which twenty-three were printed before 1784, and three only—in the shape of theses by candidates for degrees at German Universities—during the present century.

Most people, without reflection, might be disposed to assert, and to back their opinion, that more books on the Horse have been written in English than in any other language; but, assuming Capt. Huth's 'Bibliography' to be tolerably complete, the careful analysis which we have made by reference to it enables us to show that this impression is erroneous. English writers on hippology are, doubtless, numerous enough; but they do not stand at the head of the list. Up to the year 1886 they may be credited with 950 works, of which 185 were printed before 1800; 120 more before 1825; another 180 before 1850; and since that date no less than 464. If to these we add the thirty-four English books printed in America since 1850, and one in Australia in 1864, we have a total not far short of a thousand. Of these it may be safely asserted that a large proportion at the present day would be difficult to meet with, and if found would prove of not much value. The names of those who have written for all time would not make a very long list, although it should be observed that many works of perhaps little intrinsic merit are sometimes of

value as illustrating the growth of knowledge on the subject of which they treat.

The earliest English works relating to the Horse are concerned chiefly with hunting, and cannot be said to refer so much to the horse individually, or his management, as to the wild animals which he enables his owner to chase. It is only because they relate to hunting that they have any claim to be included in a bibliography of Hippology. Amongst such works may be mentioned 'The Art of Hunting,' by William Twici, written, originally in Norman-French, about the year 1307, by the huntsman to King Edward II.; the treatise on hunting in the 'Boke of St. Albans,' 1486; and Turbervile's 'Booke of Hunting,' 1575, a second edition of which appeared in 1611.

Amongst the earliest books on equitation by English writers we find Blundevile's 'Foure chiefyst offices belonging to Horsemanship,' 1565; Astley's 'Art of Riding,' 1584; Clifford's 'School of Horsemanship,' 1585; Gervase Markham's 'Discourse of Horsemanshippe,' 1593; and his 'Cavelarie, or the English Horseman,' 1607, the last-named writer being also the author of several other works of a somewhat wider scope, such as the treatise on horses in his 'Country Contentments,' 1611; 'Markham's Maister Piece,' 1615; and his 'Faithful Farrier,' 1635, all of which passed through several editions, and were very popular in their day. De Grey's 'Compleat Horseman,' 1639, many times reprinted, was another popular book in its day. In Charles the Second's time (1683) there appeared rather a notable work on the 'Anatomy of the Horse,' by Andrew Snape, farrier to his Majesty—sufficiently esteemed to be translated into French, and to pass through three or four editions. Nearly a century later, 'An Anatomical Description of the Bones in the Foot of the Horse,' by James Clark, of Edinburgh (1770), and the same author's 'Observations on the Shoeing of Horses' attracted considerable attention, and were translated into German; while, later still, the name of Bracy Clark became well known through his numerous treatises on the pathology and anatomy of the Horse, his first essay, "On the Bots in Horses," appearing in 1796, in the third volume of the Linnean Society's 'Transactions.'

The earliest treatise on horse-breeding by an Englishman, though it was written in Latin, is the work of Richard Sadler, published in 1587. The first English book on racing is one by

Gervase Markham, entitled 'How to Choose, Ride, Traine, and Dyet both Hunting and Running Horses.' It at first formed part of his 'Discourse of Horsemanshippe,' 1593, but in 1596 was separately printed under the title just quoted. The same writer is to be credited with the first English work on 'Cavalry,' of which the title has been already given. In regard to the natural history and external form of the Horse, we have perhaps the earliest English specimen in Topsell's 'Historie of Foure-footed Beastes,' 1607, although manifestly a compilation from older authors of different nationality.

As already intimated, English books on the Horse number not far short of a thousand, of which very nearly one-half have been printed since 1850; while, even as we write, fresh works and new editions are everywhere appearing.

Our French neighbours are not far behind us; for we have been able to count 919 works by French authors on the Horse, of which 105 were printed before 1800, 30 more in the next quarter of a century, 204 in the succeeding quarter, and since 1850 no less than 580; so that, although prior to 1800 there were nearly twice as many English as French books on the Horse, during the last five and thirty years the latter have exceeded the former by 116.

But in voluminous writing on this special subject the Germans have distanced all competitors. Less active than our own countrymen before the commencement of the present century, when they had produced only 142 different works, they added 275 in the next quarter of a century, and 256 more by 1850, since which date a further contribution of 579 has been issued, making in all, to 1886, no fewer than 1252. In regard to the subject matter of these, we find more books relating to anatomy, veterinary practice, and cavalry than exist in England, but fewer relating to hunting, and, as might be expected, to racing. Those dealing with equitation are perhaps a trifle more numerous, but on this subject, as well as on breaking, training, and stable management, the authorship is pretty equally divided.

The Dutch literature relating to horses is not very extensive, and Capt. Huth's bibliography does not enable us to count more than 30 works in this language. Next to the French, who stand third on the list after the Germans and English, the greatest number of works have been written in Italian and Spanish, the

former numbering 167, the latter 127. Not more than a dozen have been found in Portuguese; and in the Scandinavian languages the number dwindles down from 62 in Swedish and the same number in Danish to nine only in Norwegian.

In Hungarian we find three; in Polish, eight; in Russian, twenty-one; while the Eastern languages are represented by Persian, eight; Arabic, one; and Hindustani, one. In regard to these the numbers are probably under-estimated; for we should certainly expect to learn that in Persian and Arabic a good many treatises on horses, not easily accessible, are well known to Oriental scholars.

These statistics are of interest, as showing not only the importance attached to the history of the Horse in all ages, but the shares in which different nations have contributed to the literature of the subject in all its branches. What a splendid monograph of the Horse might now be prepared from the materials which have been shown to exist!

ON THE CLAIM OF THE PINE GROSBEAK TO BE REGARDED AS A BRITISH BIRD.

BY J. H. GURNEY, JUN., F.Z.S.

To quote from Mr. Howard Saunders's recently published 'Manual of British Birds,' "the Pine Grosbeak is a bird which is at most an exceedingly rare visitor" (p. 191), but he adds that, all things considered, he does not feel justified in rejecting it. Now, agreeing as I do with his remarks, I am the more convinced that the history of every reported British example requires the most careful sifting; for the unsatisfactory nature of the evidence generally offered will hardly be credited by those who have not examined the records. Yet because no amateur British ornithologist has ever had the good fortune to handle, in this country, a recently-killed bird of this species, we are not to cast doubt on every specimen said to have been procured. Indeed Mr. Saunders mentions some killed in Heligoland, Belgium, and other countries of Europe. Then, why should it not be found sometimes in England? In a former volume of 'The Zoologist' (1877, p. 242), I gave a list of every supposed occurrence (twenty-five in all) of this bird in the British Islands, and now propose

to bring that list up to date. My additions will bring the total up to thirty-six. Of these probably the most authentic specimens are No. 5, in Mr. A. Backhouse's possession, obtained sixty years ago or more (Zool. 1877, p. 244); No. 12, Yarrell's, also shot about sixty years ago, though Prof. Newton considers (Yarrell's Brit. Birds, 4th ed. ii. p. 179) that doubt may be reasonably entertained about it;* No. 27, in the Whitby Museum, shot out of a flock near Whitby, by Mr. Kitching in the winter of 1861, and No. 32, Mr. Edward Hart's specimen, procured in the New Forest. The first two of these were described in my former article (*l.c.*), the last two will be noticed in the present communication.

But because these four are believed to be authentic, it does not follow that the others are not so. Possibly some of them are to be relied on; but, in my judgment, Nos. 28, 30, 33, 34, 35, 36, are probably cases of mistaken locality, and Nos. 26, 29, of mistaken identity.

26. Mr. G. Muirhead, in his 'Birds of Berwickshire,' reviewed in the current number of 'The Zoologist,' states that the Pine Grosbeak is recorded by Dr. R. D. Thomson, in the 'New Statistical Account of Scotland.' Dr. Robert Thomson, F.R.S., died in 1864, and the occurrence referred to must have taken place more than thirty years previously.

27. In Messrs. Clarke and Roebuck's useful 'Vertebrate Fauna of Yorkshire,' mention is made, on the authority of Mr. Thomas Stephenson, of a Pine Grosbeak in the Whitby Museum, which was shot about 1861, in the winter, by Mr. G. Kitching, the same person who on another occasion got a Crested Titmouse (Zool. 1872, p. 3021). Mr. Stephenson says it was shot at Littlebeck, five miles from Whitby, a locality abounding with plantations of larch and fir, and adds that Mr. Kitching at the same time shot four others. These he preserved as skins, but they have been since unfortunately lost sight of, and are probably not now in existence. Mr. Stephenson and Mr. J. Wilson, after

* This doubt applies not to Yarrell's specimen shot at Harrow-on-the-Hill, and now in Bond's collection (*tom. cit.* p. 177; Zool. 1877, p. 246; 1889, p. 414), but to the specimen stated by Fox (Synops. Newc. Mus. p. 65) to be in his possession "through the favour of Mr. Yarrell," and believed to have been procured at Welwyn, in Hertfordshire.—ED.

thoroughly examining the one in the Museum, have failed to detect the least indication of its having been in confinement, and there is no doubt about its being a Pine Grosbeak, for, at my request, they have compared and matched it with a specimen procured by Wheelwright in Sweden. As regards the date, there is an important piece of corroborative evidence in 'The Field' of March 22nd, 1862, where Wheelwright, writing from Sweden under his well-known *nom-de-plume* of an "Old Bushman," about the plumage of the Pine Grosbeak, says:—"This winter [*i.e.* 1861-2] they have been unusually numerous, and about forty specimens have passed through my hands." Nothing is more likely than that some of the birds seen should have crossed the sea, just as in 1884,—when, on the 12th of September, great numbers of Bluethroats appeared in Heligoland ('Report on Migration,' p. 44), and on that very day appeared also in Norfolk,—and if the Pine Grosbeaks did cross the North Sea, where would they be more likely to occur than on the coast of Yorkshire?

28. In 'The Zoologist' for 1883 (p. 222), Mr. R. M. Christy reports a Pine Grosbeak shot at Little Abington, in Cambridgeshire, in January, 1882. I have examined this bird. It is a good red male, and is said to have been shot by a groom in the vicarage-garden. It was sent to a village birdstuffer named Unwin, who sent it to Travis, the taxidermist of Saffron Walden, to whom we are indebted for its correct identification, and on whose authority its reliability and rescue undoubtedly rest.

29. In the late Mr. Churchill Babington's 'Birds of Suffolk,' the author, on the authority of the late Rev. F. Tearle, of Gazeley, mentions (p. 234), a Pine Grosbeak shot at Heigham in 1874. Correspondence has failed to trace its whereabouts, and Mr. Babington has marked this and the next as doubtful.

30. Mr. Babington also mentions, on the authority of the Rev. H. T. Frere, of Burston Rectory, Diss, another shot near Bury, about 1830. Mr. Frere thinks it was 1836: whatever the precise date may have been, it was preserved by Head, a bird-stuffer at Bury, and afterwards acquired (as Mr. Frere believes) by the late Mr. Vernon Wollaston.

31. Mr. T. J. Monk, of Lewes, has favoured me with the sight of a handsome yellow male bird of this species, obtained at Shoreham, which he procured through the late Mr. Swaysland. It is said to have been killed near the old bridge, far away from

any trees, a curious place for this dweller among forests ; possibly it may have escaped from captivity—a supposition which is favoured by its yellow plumage. In the Zoological Gardens, Regent's Park, there have been several in captivity.

32. Mr. Edward Hart has been good enough to submit for examination a male Pine Grosbeak killed many years ago in the New Forest. It was stuffed by Barrow, of Christchurch, and afterwards passed to Mr. H. Jenkins, who is no longer living, but is believed to have had no foreign skins, and Mr. Hart's bird certainly looks as if it had been mounted from the flesh at a time when bird-stuffing was not the advanced art which it is at the present day.

33. About March 1st, 1889, a taxidermist at Great Yarmouth received four Pine Grosbeaks in the flesh, affirmed to have been shot in the Wolmer Forest, Hampshire. Probably either a trick had been attempted by the sender, or an unconscious mistake made ; and instead of having been killed in Hampshire, very likely they were sent in ice from Russia, as happened a few years ago when some of these birds were sent in a frozen state to the principal poulterer at Brighton.

34. In the Natural History Museum at South Kensington may be seen a male and female Pine Grosbeak labelled "Norfolk," which probably came from a notably unreliable birdstuffer named Hubbard, now deceased. But, from whatever source received, there is no evidence whatever to support the statement that these two birds were procured in Norfolk.

35. Mr. J. G. Millais has shown me a Pine Grosbeak, said to have been killed by a gardener at Beccles, in Suffolk, and given to him by a tailor at Lowestoft named Freeman. Mr. Crowfoot, of Beccles, has endeavoured to ascertain more about it, but without success, and were it not that its owner has implicit belief in the statement made to him concerning it, I confess I should feel much doubt about it. It seems clear that it cannot be identical with either of the other specimens reported from Suffolk, and it should be remembered how often mistakes are made without the slightest intention to deceive.

36. Lastly, some reference should be made to a Pine Grosbeak, a red male, affirmed to have been shot at Powderham, in Devonshire, and stuffed by a gardener named Major, since dead. Without any evidence one way or the other, I may simply state

that I do not in the least believe that it was killed anywhere in England, although the late Mr. Byne, of Taunton, and Mr. Truscott, of Exeter, both believed in it. According to my experience, the shooters of such rare British birds as the Great Black Woodpecker, Spotted Sandpiper, and Pine Grosbeak are generally found to be dead when wanted to give evidence—an inconvenient circumstance which naturally casts some doubt on the marvellous statements attributed to them.

ORNITHOLOGICAL NOTES FROM MAYO AND SLIGO.

By ROBERT WARREN.

THE exceptionally mild temperature of the winter of 1889—90 had a considerable effect on the movements of many of our birds, both residents and migrants, there being no frosts during the season to limit the supply of food, or drive them to more southerly haunts. November was mild and dry, the mercury ranging from 58° to 33° during the month, and rain falling on only fifteen days.

December was also mild but very wet, there being only nine dry days, and the thermometer registered 54° as the highest, while the mercury marked 32° only once during the month. January was an exceedingly wet and stormy month, the worst I can remember. There was a continued succession of gales until the 29th, and only seven dry days; while the average maximum temperature was $47\frac{1}{2}^{\circ}$, and the minimum $35\frac{2}{3}^{\circ}$; the mercury only three times falling to 32° and once to 29° , and on the 29th the thermometer registered 50° by day and 44° that night. The month of February began with a very mild temperature; on the 1st, with a S.W. wind, the mercury stood at 54° and 45° ; but after the N.E. winds set in the nights were colder than in the previous months, the thermometer marking on some nights the freezing-point, and occasionally a degree or two below it, and but once down to 29° and 28° . The month was the driest ever remembered in this part of the country, there being the very unusual number of twenty-one dry days; while the early part of March, on the contrary, was very wet, with a low temperature, the coldest night of the season being that of the 2nd, when the mercury fell to 25° .

As already observed, the mild season had a marked effect on some of our birds; the Lapwing, for instance, remaining in the district in undiminished numbers all through the winter, whereas in other seasons the majority disappear with the early December frosts; and in February, when returning to their breeding haunts, a score or so are generally seen about; but this winter I observed flocks as numerous as those seen in October and November, thus giving promise of a good breeding season in consequence of the large number of birds returning to their breeding grounds.

I observed few Golden Plover about the Moy estuary, the mild weather not inducing them to leave their inland haunts to rest by day on the sands, as is their usual habit in mild seasons; and I have heard from some shooters that they have been rather scarce in their usual inland haunts. On September 9th I was surprised at seeing three Swifts flying about over the old Rath here; they were in the company of some Swallows and Martins, but all had disappeared the following day. On the 22nd I saw a little flock of twenty Teal on a small lough in one of my fields next the shore, but although I did not shoot at them, they only remained a few days, and did not return later in the season. I saw a flock under similar circumstances at the same place last year, and they also went off after a visit of a few days. On October 2nd, observing a few Wigeon resting on the water off the point of the Hillfield, I launched my punt, and putting the gun on board, paddled down to them, but they scattered so much on the approach of the punt that I only knocked over three birds by the shot, and on picking them up was surprised to find that two were Pintails, an old female and a young male, the latter beginning to moult, and just showing a few feathers of the male plumage; the third bird was a young male Wigeon of the year.

Wigeon were very scarce, not more than a score being seen about until the end of November, when the main flight appeared near Bartragh about the 25th. Not having been down for some days, I did not know of their arrival, until one of the pilots asked me one day "why I did not go after the Wigeon that were feeding in hundreds at the Sloke Rock;" but owing to the mildness of the weather I was unable to look after them until the 28th, when I went down the channel, and sure enough when I

got to Bartragh I saw them more numerous than in any year since 1880—81, and as tame as when starved by the hard frost of that season. I never saw them so tame so early in the season before frosts, and can only account for it by their being so knocked about by the heavy gale of the two or three previous days, or by there being so many young birds in the flock, and yet there were quite sufficient old birds to give the alarm if they thought of danger from the punt.

On reaching the Point of Bartragh where I got a good view of the birds, I saw between 300 and 400 Wigeon scattered feeding along the shore by the Sloke Rock, and extending fully 400 yards along the edge of the water, but not crowded together anywhere so as to offer a tempting shot; so taking the bunch nearest me I fired, knocking over five out of seven birds; the entire flock then rose at the report of the gun, and to my great surprise, pitched again on the water a few hundred yards lower down, swimming in to the bank, many walking upon it while I was loading. Having loaded as quickly as possible, I threw a few bunches of seaweed on the punt, and paddled down quietly close along shore, passing many scattered birds at fifteen and twenty yards distance without alarming them, until I got near the main flock, which had separated into two companies, the nearest on the bank consisting of thirty or forty birds, and the far one of nearly 200 also on the bank, while a great many birds were in the water near them. On approaching almost within shot I found that, owing to the scattered birds in the water, it was impossible for me to get within range of the big flock without alarming the swimming birds between; so after some hesitation, not liking to risk my chance of a shot by pushing on to the big flock, I decided on taking the small one, and firing when I got within sixty or seventy yards, I knocked down twenty birds, picking up nineteen, one cripple getting off amongst the weed-covered stones where I was unable to find him.

Most of those obtained were birds of the year, very small ill-thriven birds (some scarcely larger than Teal), and appearing as if want of food when young had checked their growth; indeed, I never saw such small Wigeon before except in 1880—1, when a great number of those I shot were of similar small size.

Notwithstanding that these two shots were fired within such a

short time of each other, the birds were not driven off, but merely moved about a mile further up the channel, where I saw them on my return with the flood-tide; but as the night was just falling I made a bad shot for want of light to enable me to aim correctly at a bunch lying on the side of the bank, and only picked up ten birds for the shot, having fired over them, aiming too high as is generally the case in a bad light.

Having been obliged to leave home the following day, and living away for three weeks, I lost the whole of December; and January being far too stormy, there being only one or two days calm enough for punting, it was not until February 3rd that I again came across the Wigeon.

I was returning from the Moyne channel in my punt, where I had been all day without obtaining a shot at anything (even the Godwits were too wild and unsettled to let me get within shot), and when I got into the main channel I observed about 200 Wigeon resting on the edge of the bank on the Scurmore side, opposite the Sloke Rock. The wind was very squally and blowing on shore, and as I paddled up to the birds the wind took the punt on the beam; and, during a heavy squall, as I got just within that, the wind forced her up on the bank, and before I could get afloat again, and her head turned to the Wigeon, they all made off, and I lost a splendid shot, for the birds were packed as close together as they could stand.

On the following day I found them near the same place, but the day being calm and very bright they were much wilder, and would not let me get close enough for a heavy shot, so I was obliged to fire a long shot, by which I got only fifteen birds. However, when returning on the flood tide, I saw another little flock of a dozen, out of which I got seven birds. A few Mallards were down during November and December, but after that date they changed their haunts and remained inland altogether, for there were no frosts to drive them down to the seashore. Three or four Scaup Ducks frequented the channel part of the winter, and thirty or forty Goldeneyes haunted the tidal part of the river near Belleek Manor; and, strange to say, fully one half of the flock, if not more, appeared in the plumage of old males. A large number of Black Scoters were in the bay all the season, fishing just outside the breakers along the island of Bartragh. The fishermen often told me of the Black Ducks, but having

often seen large flocks of Wild Ducks in the bay, I thought the latter were the birds they spoke of; for in the distance Ducks often look very dark, and in some lights look quite black to the naked eye. However, on February 3rd I was at Bartragh, and as the surf had fallen considerably in consequence of the wind blowing off the land, the Black Ducks came closer than usual to the shore, and with the aid of my glass I was able to observe them pretty closely as they dived along the breakers, and fully satisfied myself that they were Black Scoters, though two or three times I thought I could detect Velvet Ducks in the flock; for as they rose and flapped their wings I could plainly distinguish white markings on their wings.

This was the only occasion that I was able to get a good view of these Ducks with a glass, for they had always previously kept too far outside the breakers to make out what they were, and it was impossible to reach them from either punt or boat. Of wading birds visiting our shores, the Gray Plover was the scarcest this winter, while Turnstones and Sanderlings were unusually numerous. Godwits appeared in about their usual numbers, but Knots were not at all plentiful, though Curlew were positively in thousands on the sands of the estuary and adjacent islands.

There is seldom any difference to be remarked in the Redshanks or Greenshanks, although this winter I think the little flocks of the latter birds appeared larger than last year. Fifteen, I think, was the largest flock of Greenshanks observed this winter, but the general number seen together is about seven or eight birds. In this district Greenshanks remain all through the winter, never leaving our shores except for their breeding grounds in spring; and their stay is so short that they are frequently seen back again on our shores the last week in July.

When walking along the shore on March 15th, observing some Wigeon and Godwits feeding on the sands, I was rather surprised to see a Sandwich Tern flying past; it appeared to be a solitary bird, no others being in sight at the time, so I suppose it is the first visitor of the season, till followed soon by the rear-guard of our summer migrants.

NOTES AND QUERIES.

MAMMALIA.

The Wapiti in Europe.—Near Luckenwald a wealthy Berlin manufacturer owns an important shooting, whereon the Wapiti, *Cervus canadensis*, has been acclimatised, and between Jan. 20, 1889, and Jan. 20, 1890, seven of these animals were shot there, one of them having a head of fourteen points. Whether the difficulty of stalking them is as great as is the case in the wilds of North America may well be doubted.

Wolves and Bears in France.—On certain estates in the Department of the Marne, poison is used for destroying Wolves, and in this way sixteen of these animals have been killed during the present winter, the last of which weighed over 70 lbs. The Bear is still at home in the mountains of Isere, bordering on Savoy, and has lately made its appearance in the forests of Haut-Diois, in the Department de la Drôme. Bear drives have been organised, but so far without success.

The Wild Cat in Hungary.—It is said that the Wild Cat, *Felis catus*, is not uncommon in some of the forests of Austria. During the past shooting season no less than twelve were killed on the property of Count Franz Szechenyi, at Tarnocz.

Marten in North Wales.—A correspondent, writing to the Editor of 'Shooting,' reports that in February last two Martens were trapped on Lord Penrhyn's moors, by Conway Lake. They were said to be male and female, and both fine animals of the average size.

A Trap for Field Mice.—On March 7th I discovered a curious mouse-trap, which had caused the death of eight Field Mice. It was nothing more nor less than an old tin can, which was standing against the wall in a field, and contained the bodies of eight mice. They had evidently run along the wall, and, while investigating the mysteries of the old tin pot, had fallen in, and as it contained about four inches of water, and was itself about eighteen inches deep, it was of course impossible for them to get out again, consequently they fell victims to their own curiosity; at least this is the only way I can account for their being there. — R. FORTUNE (Harrogate).

Polecat in Cornwall.—I beg to record the capture, in Upton Wood, Lewanick, East Cornwall, of a male Polecat, an animal which I believed to be nearly extinct in the South of England. It was formerly very plentiful here, but I have not seen one for twenty-five years. The measurement and weight of the one just obtained are:—Length, from nose to tip of

tail, 1 ft. 9 in.; weight, 2 lbs. 10 oz. The fur in fine condition.—FRANCIS R. RODD (Trebartha Hall, Launceston).

Number of Dogs in the British Islands.—I observe in 'The Zoologist' for January last that, speaking of the number of dogs in the British Islands, you say that the Dog-tax for the United Kingdom is 7s. 6d. I write to point out that in Ireland the Dog-tax is only 2s. 6d. for each dog, with a 6d. stamp for the license; that is, for one dog we pay 3s., for two 5s. 6d., for three 8s., and so on. Will this not make an alteration in your figures?—ROBERT PATTERSON (1, Windsor Park Terrace, Lisburn Road, Belfast).

Mus alexandrinus and Mus hibernicus.—Having in my possession several rats which differ from both the Brown Rat (*Mus decumanus*) and the Black Rat (*Mus rattus*), I am inclined to think that I can throw some light on the questions discussed by Mr. Southwell and others in your pages last year. The rats in question were caught in Mr. Jamrach's well-known establishment in East London, where there are many, both black and brown. Three are brown, but have the long muzzle, ears, and tail of *M. rattus*: surely these are the *M. alexandrinus* of writers. Another is black (male), with white throat and feet, but the short ears and tail of *M. decumanus*,—however, its muzzle is long, as in *M. rattus*: is not this the so-called *M. hibernicus*? Lastly, I have a pure *M. rattus* (female), with long muzzle, ears, and tail, from the same place. My friend Mr. Kelsall, who suggested this letter, has received both white-throated and pure black specimens from Mr. Jamrach, and was told by his neighbour, Mr. Abrahams, of a whole family of Black Rats with white throats. Surely both *M. alexandrinus* and *M. hibernicus*, as briefly described above, are hybrids between *M. decumanus* and *M. rattus*, each showing some peculiarities of both parents. I have thirteen young rats, out of brown and white and black and white does, by the white-throated male above-mentioned: ten of these are black, with white bellies and feet, three are brown similarly marked.—MAURICE STUBBS (Wavertree, Liverpool).

BIRDS.

Wild Hybrid between Goldfinch and Greenfinch.—I have lately obtained full particulars of the curious bird, supposed to be a hybrid between Goldfinch and Greenfinch, which was lately exhibited at the Crystal Palace, and is referred to in the last number of 'The Zoologist' (p. 106). The exhibitor, Mr. Waterman, has also kindly furnished me with a detailed description of its plumage to supplement the hurried note I was obliged to take at the show. The bird was caught in the month of November, three years ago, by an amateur bird-catcher named Richard Brown, at Hackbridge, in Surrey, with two others supposed to be examples of the same cross, but of the opposite sex. This bird, believed to be a

male, was very wild when first taken, and remained so for quite a year after capture, and was then much yellower in colour than it is now. It used to sing the Greenfinch's note, but louder. Since being placed by the side of Goldfinches and Linnets, however, it has taken almost entirely to the notes of the Goldfinch. The owner states that it will eat "almost anything in the shape of seed—including oats." As to its description: in its general appearance it resembles a Greenfinch in shape, but is too finely built for a bird of that species, has a less distinctly forked tail, and appeared to me to have a somewhat narrower skull; while in colour it gives one the impression of a Goldfinch with a wash of yellowish green over it. The feathers at the base of the bill are black. The face of this bird has the part which is crimson in the Goldfinch coloured bronze. The other markings on the head correspond to those of the Goldfinch, substituting pale greenish grey for white, and dark greenish grey for black. The back of the neck and back are greenish brown, inclining to yellow on the upper tail coverts. The tail has the two outer feathers white with black margins; the rest are black with "a slight fringe of yellow." The under tail-coverts are white. Belly yellowish green; throat greyish. The wings are "similar to those of the Goldfinch:" the colours, however, are not so bright, but "otherwise the three colours found in the one are also shown in the other, and in exactly the same order." Legs pale in colour; and the beak is pale flesh-colour, tipped with black. I have not yet been able to trace the two other birds caught at the same time. The bird in question shows such obvious similarities to both Goldfinch and Greenfinch that there can be no doubt of its parentage. Its present owner has caught Greenfinches and Goldfinches at the place where it was captured. Moreover, the Greenfinch pairs so readily with other birds that there is hardly one of our common British Finches with which it has not mated in captivity; and breeds when wild not infrequently with the Linnet ('Zoologist,' 1883, p. 379; 1887, p. 303), and perhaps also occasionally with the Siskin ('Zoologist,' 1887, p. 266).—ARTHUR H. MACPHERSON (51, Gloucester Place, Hyde Park).

Lapwing's Nest made of Rush.—On June 8th, 1889, I found in Jutland a nest of the Lapwing, made solidly of pieces of dead rush-stems, exactly like Black Terns' nests found in the same neighbourhood, but larger, and not so deep in proportion. The four eggs were those of the Lapwing, and one of the birds was wheeling about overhead.—JOHN P. THOMASSON (Woodside, Bolton).

Ornithological Notes from Redcar.—The following notes relate to the capture or occurrence of uncommon birds in the neighbourhood of Redcar during the past year of 1889:—On Jan. 3rd eight Swans were noticed, at 10 a.m., about a mile out at sea, flying to the N.W. On the 30th great numbers of shore birds were on the Tees sands, but quite unapproachable

with an ordinary gun. On Feb. 14th a Green Cormorant was shot in the river, by a Redcar fisherman; the Shag is, in my experience, a rather rare bird in this district. On the 15th I purchased a Red-necked Grebe in winter plumage, which had been picked up alive on the sands. About the end of May a Grey Plover, in full breeding plumage, was shot by the river-side near Lackenby. During the summer a local taxidermist had four young Hawfinches brought to him, and he is of opinion they were from two different broods: two of them (male and female) he reared, and they are now thriving and in good plumage. It would not be advisable to mention the exact locality where the nests were found, but it was within a mile or two of Redcar. During the middle and latter part of August shore birds arrived in considerable numbers. About twenty Little Stints and two or three Pigmy Curlews were shot; two of the latter were adult birds. Knots and Turnstones were also very numerous towards the end of the month; two of the former with red breasts were procured. On Aug. 30th, and for several days afterwards, Sandwich Terns passed to the S. in small parties of three or four. While off in a boat, E. of Redcar, I shot two, both mature examples. On Sept. 6th my friend Dr. Kershaw shot a Pigmy Curlew, with partly red breast, from a flock of Dunlins; and on the 9th he shot an immature specimen of Buffon's Skua on Coatham Sands. The Skua tribe was well represented in September, chiefly *S. parasiticus*, but on one occasion—when sailing between Redcar and Saltburn—I noticed several *S. pomatorhinus* in adult plumage. On the 11th a large flight of Duck and Wigeon passed during a N.E. gale. I shot two of the latter, both immature birds. On Oct. 6th I purchased an immature example of Sabine's Gull, which had been killed in Tees Bay. On the 12th (N. gale, rain) a great flight of Ducks, also a few Hooded Crows and Woodcock; two Spotted Crakes were obtained on the marshes near Middlesbro'. On the 13th (N. wind, light) Larks and Hooded Crows crossed in large numbers. A Fulmar Petrel was taken in a rather extraordinary manner; it alighted on the water, near the wreck of a screw-steamer on which some fishermen were working; one of them put off in a small boat, and, rowing towards the bird, threw a piece of wood at it, which hit it on the head and stunned it. I examined a Peregrine Falcon which had been shot near Ingleby, in Cleveland, and brought to the Middlesbro' taxidermist to preserve. On Nov. 23rd a Rose-coloured Pastor, the first I have known in this neighbourhood, was shot at W. Coatham, and taken to our local bird-stuffer. Early in January of the present year I was informed that some Shore Larks had been observed at the Tees Mouth. On the 29th one was shot, and I went out several times to see if I could fall in with them, but, although I saw a few each time, they were very wild, and I was not successful in getting a shot; but on Feb. 14th I managed to secure six, and saw seven or eight others feeding among the rough grass near the shore edge. During

the latter part of January and beginning of February the fishermen reported numbers of Little Auks at sea. In February one was picked up on the sands, it having been killed at sea and washed ashore. Feb. 26th, 27th, and 28th, several Puffins, Guillemots, and Little Auks were driven ashore during a strong N.E. gale. Some of the Puffins and Guillemots were alive when found. On Feb. 28th another Shore Lark was shot at the Tees Mouth.—T. H. NELSON (Apsley House, Redcar).

The Green Sandpiper in Ireland.—On Aug. 23rd last I obtained a specimen of this Sandpiper, in full summer plumage, on the River Dodder; and on Dec. 15th I saw another bird of this species at the same place. I observed the latter repeatedly till the middle of February, when it disappeared. I have occasionally met with it in winter hanging up with Snipe in the market, but it certainly occurs more commonly in the autumn.—EDWARD WILLIAMS (2, Dame Street, Dublin).

Hawfinch and Brambling in Ireland.—Hawfinches have been very numerous in Ireland this winter, and have been quite common in the fine old hawthorn woods of the Phoenix Park. Up to this date (March 15th) they show no signs of migrating. Strange to say, they have never been found breeding in Ireland, though I have had specimens from, or heard of these birds occurring in, many other parts of this country. Bramblings have been common in the southern part of the Co. Dublin, and have remained late enough to assume the full summer plumage. I have seen some specimens with the head quite black, every trace of the ashy grey having worn off.—EDWARD WILLIAMS (2, Dame Street, Dublin).

Habits of the Kentish Plover.—Being in the haunts of this interesting little bird last summer, I had an opportunity of noting down on the spot a small item in its economy that may be of interest to other observers of bird-life. The day was exceedingly boisterous, not one that an observer would choose. The dry sand of the shore was being swept over the damp sand in clouds that only rose up some ten inches, but at times entirely hid everything on the ground. I had been watching the movements of one of the Plovers attempting to entice me forward, when my eye fell on a tiny little speck moving rapidly windward on the wet sand. On my approaching it squatted down, without any shelter, head to the wind, and remained almost perfectly quiet. How such a little ball of down, about the size of a walnut, was not blown over and over, as were many rolls of seaweed, was strange enough; but, stranger still, how was it not at once banked up with sand on the windward side, as were all the few scattered pebbles that were about? Stretched out, and held stiff against the sand on its "port-quarter," was one of its powerful legs, thus effectually preventing any bowling over. I have said that it remained almost perfectly quiet. Such movement as there was, I think was too slight to attract any

predatory bird that might be passing, and yet it fully answered the purpose. The tiny little bill was pointed downwards, and moved slowly but regularly from side to side, thus displacing any sand that drifted right up against the little creature; all passed harmlessly away on one side or the other. Instead of the smothering pile of sand that might have been expected, there was really a slight depression. Of course, had the little thing turned its back to the wind, and thus kept its head clear, it would not have been able to have used its leg to such purpose as it did.—CHAS. J. HOLDSWORTH (Hill Top, near Kendal).

Jack Snipe in Norfolk in Summer.—A Jack Snipe was picked up dead, beneath the telegraph-wires, in the parish of Sutton, Norfolk, on May 30th, 1889. It was apparently in full feather, and externally in good condition. This is not the first or only occurrence of the Jack Snipe in the Broad district, during the summer months, which has come under my notice; although probably compulsion, and not choice, has been the cause of their non-migration at the usual period,—an imperfectly healed shot-wound, or loss of feathers, then rendering them unfit for so long a journey or retarding their northerly flight until the natural inclination to do so had departed. I regret now that I did not pluck and dissect the Jack Snipe that I have met with in Norfolk at the abnormal dates of April, June and July. I see, on reference to my note-book, that Sept. 26th is the average date of the first Jack Snipe being shot in the ordinary course of events, during the past ten seasons. In a local publication, entitled 'Unnatural Natural History Notes,' by Col. H. M. Leathes, at p. 64, is this passage:—"Early in the month of August, 1869, my gamekeeper came up to the Hall one fine morning and announced the following fact, *viz.*, that during the summer some Jack Snipe had bred in one of our marshes at Herringfleet. As I was aware that this was an unheard-of occurrence, I closely questioned the man on the subject. He assured me that often during that season he had put the 'Jack' off their nests; that they had without doubt bred there, and that their young were now strong and healthy on the wing. He finished up by adding, 'If you do not believe me, sir, bring your gun and come and see for yourself.' A few minutes later saw me equipped and ready for the fray. The marsh we entered was always a favourite one for Snipe; in fact, more a 'rand' than a marsh, and about two acres in extent, surrounded, however, by miles of Snipe ground. In less than a quarter of an hour I had fifteen Jack Snipe in my bag. I killed them nearly all with my first barrel; those I did not, simply flew a few yards, settled down again, and never left this small marsh. One little chap I had to shoot at no less than five times before I secured him. What I would have given for an egg nobody can tell. I believe I should have been the only owner of a veritable Jack Snipe's egg fairly laid in England. Talking afterwards to the Rev. Mr. Talman, a Fellow of King's

College, Cambridge, a learned naturalist, and a dependable clever man, who resided in the adjacent parish of Haddiscoe, I was informed that, "without doubt, Jack Snipe had been bred in these marshes, and that he had known instances of this fact upon more than one occasion. My gamekeeper swears to having often flushed the Jack from the nest during the season." I wonder whether Col. Leathes had any of these Jack Snipe stuffed, and if so, by whom. If Mr. Gunn had handled them, I fancy he would have discovered their being birds of the year, and we should have heard something more of this exceptional occurrence through the Natural-History journals. Just fancy, seven and a half couple of Jack! Three nests, at least, must have contributed their quota towards the bag.—M. C. H. BIRD.

[On the other hand, we have repeatedly known the Dunlin, *Tringa alpina*, to be mistaken for a Jack Snipe, even by men who have been shooting for many years. The book to which our correspondent refers, and which contains some very pleasant reading, was printed by Clowes and Sons, London and Beccles, 1884.—ED.]

Grey Shrike and Peregrine in Lincolnshire.—With reference to Mr. Allison's letter, at p. 106, on this subject, the following notes may be of interest:—I first met with the Grey Shrike in 1889, on Oct. 31st, on which date I saw two on a poplar tree near North Cotes sluice. The wind was blowing fresh from the S., and there had been a gale from the same quarter during the previous night. Both birds flew inland, and I did not see them again. On Nov. 16th I put up a Grey Shrike far out on Tetney "fitties." It also flew inland in the direction of a Plover decoy belonging to Henry Stubbs, the well-known wild-fowler, and was seen on a hedge there by young Stubbs the same day. Wind N., light, with rain and fog. These three birds showed very little white on the wing during flight and perhaps belonged to the race *Lanius major*. On Dec. 4th a fine adult bird, having the two wing-bars of typical *L. excubitor*, was found dead in a stack-yard near the coast, in the parish of North Cotes. It had been somewhat disfigured by mice, but I succeeded in making a good skin of it. The farmer who found it told me that he had seen this bird, or another like it, on the farm a few days before. The weather had been very severe since the snow-storm of Nov. 27th, and much snow still lay in the marsh country. The next Grey Shrike I met with was on Jan. 1st, 1890. It was also of the double-barred form. I saw it at a very short distance on a thorn-hedge at North Cotes. Light S. wind, with fog and rime frost. Lastly, one was seen on a willow tree at Marsh Chapel, by John Stubbs, on January 3rd. Wind S., light, sharp frost with fog. Stubbs shot at this bird at short range, but missed it. In addition to these, two birds were seen by separate persons,—one at Tetney, the other at Grainsby,—both about Christmas, which, from the description I received, were doubtless of this species. The only Peregrine I saw during the winter was on Jan. 6th. It was perched

on an iron bolt, on the stern-post of one of the old wrecks which are so numerous on some of the sand-banks at the mouth of the Humber.—G. H. CATON HAIGH (Aber-ia, Penrhyndeudraeth, Merionethshire, N. Wales).

Surrey Rooks in New Zealand. — Some time since I requested Lord Onslow (the Governor of New Zealand) to enquire about our Surrey colonists, the Rooks, in that country, which he has most kindly done; but before I give his report I must observe that this useful and interesting bird is an introduction, and not existing there before Mr. Bartlett, of the Zoological Gardens, and his son, with myself, collected them in this neighbourhood, viz., from the rookeries of Hoe Place and Sand Grove, where every kind assistance was given us by the owners, the late Mr. W. Wainwright and the late Mr. A. P. Onslow. Before giving Lord Onslow's letter, which is very interesting, I must mention a curious fact, which saved no end of trouble as well as expense, which was this:—At first the young Rooks required feeding three or four times a day, having the appetites of all young things, and as there were forty of them, the keepers were engaged all day at this work. However, curiously enough, they were happily released by the elder of the young Rooks taking this upon themselves, in which they appeared to take the greatest delight. They certainly did their work well, for only one died out of the forty. I now give Lord Onslow's account of how they became good and faithful subjects:—"I have enquired about the Rooks, and have rarely been more amused than with the account of their proceedings. It appears that after they were liberated they made a careful tour of both islands, being seen in different localities in succession round the coast. They finally selected two or three spots, which they colonised just like human beings, and where they have quite installed themselves. At one place Mr. Huddleston found they could not build with the twigs of the native trees, because they were so flat they would not hold. Anxious not to lose his Rooks, which he had had in the garden quite tame, he hit on the expedient of notching the twigs and giving them to the Rooks; and he was seen most solemnly cutting notches in the twigs, and *handing* them to the Rooks, who thereupon took them away for building materials. Sir James Hector, the leading naturalist and curator of the museum, who knows your name well, is my authority for this, which I hope will be interesting to you." I am sure those who read this will agree with me that certain parties in Northumberland who have combined to kill off these useful grub-eaters should be thoroughly ashamed of themselves. — F. H. SALVIN (Whitmoor House, Guildford).

Supposed cause of the Migration of Birds. — The migration of birds was no doubt originally caused by temperature, which directly affected the birds, and also acted indirectly by its effects upon the food-supply of insectivorous species. Migration was not caused by the want of food alone,

for although this applies to many of the birds, it does not afford a complete explanation. Many of the birds which migrate to the south in winter are replaced by others from the north which live upon similar food. It may be taken for granted that birds and mammals, like plants, have a minimum and a maximum temperature, below and above which they cannot exist, and an optimum temperature that is most favourable to their existence. The migration of birds would be caused by their efforts to keep in the temperature most suitable to their existence. Considering the great and important effect that the cold temperature of the glacial period had upon the distribution of animals and plants, it was no doubt at that time that the migration of birds first began. During the warm Miocene period there would be little or no migration. When the temperature of Europe was lowering during the glacial period, the animals and plants would either be exterminated by the cold, or become modified to resist it, or escape the cold by migrating southwards. Plants, not possessing any means of locomotion, would be killed as the cold became too severe for them, while their spread southwards would be favoured. The mollusca and their allies, whose powers of locomotion are also limited, would also be affected in the same way. It is for this reason that plants and testacea are more valuable to the geologist as indications of the prevailing climate than are birds and mammals. Many of the latter were exterminated by the cold of the glacial period, others were protected by thicker coatings of fur (as we find *Rhinoceros* with wool and *Mammoth* with fur surviving in Europe after the glacial period), while others were driven southwards. All this shows that the general result was to drive the living things southwards, but birds differed from all other animals generally by returning to the north in spring, and the question is, how did this habit originate? It began, I think, in this way. After the breeding season, the birds would scatter in all directions, keeping in family groups, or joining with others in flocks, as they do now, returning to their breeding places in spring. When the cold of the glacial period first set in, it would be so gradual that it would hardly be noticed that a change was taking place in the temperature. As the cold increased the birds which wandered southwards would find themselves in a temperature more suited to them than those who went in any other direction, and their southern range would be gradually extended as the climate became colder, until there would be a considerable distance between their winter haunts and their breeding place, to which they would return every spring. At first birds would find their way backwards and forwards by memory, the homing pigeon shows that by memory they can return from considerable distances over routes they have previously traversed. The birds which went farthest southwards would return more invigorated and in better plumage than those which were more to the north, and would have a considerable advantage over the latter in the

struggle for existence. The distance between the breeding places and winter resorts of the birds would in time become so great as to necessitate a long flight to pass from one to the other, so that when the cold weather warned them of the approach of winter they would set out southwards, some flying direct, others flying by stages and loitering on their way. In the course of time, through being repeated so long, this habit would become an instinct, inherited by the young birds from their parents. The insectivorous birds would have an additional inducement to fly southwards, as the northern insects would be destroyed by the cold, while there would be an abundance of food in the south. It may be asked, why should the birds return to their breeding places in the summer? why should they not remain in the south? This difficulty is, I think, explained by the birds' habit of building in the same place year after year. There are many instances given of migratory birds returning to the same place to build, the birds being marked for identification. Many birds are extremely local in their distribution, and will return to some particular glen, cliff, or wood year after year, although there are plenty of other places, apparently as eligible. After a year's bird-nesting I was so accustomed to find nests in certain places that I could go to them and feel certain of finding a nest. I could tell within a few yards where Blackcaps, Willow Wrens, Redstarts, Whitethroats, Spotted Flycatchers, and other migratory birds would build. Blackbirds, Thrushes, and other birds will build sometimes in exactly the same place year after year, and in some cases by means of a particular mark, such as a white feather in the tail, I have known it to be the same bird. This habit of building as near as possible in the same place every year was the reason why the birds returned to the north in the spring when the breeding-time approached. It is owing, I think, to the birds being driven southwards by the cold of winter, with their habit of returning to the same breeding-place every year, that the instinct of migration probably originated.—JOSEPH VINE (11 Chester Road, South Highgate).

Little Auk at Scarborough. — During the last two months several examples of the Little Auk, *Mergulus alle*, have been obtained near here. One was captured by placing a basket over it as it was resting on the sea; another taken alive in a garden, in an exhausted state, and soon died; five others were otherwise caught or shot. As I have not heard of the occurrence of this bird near here for three or four years, it perhaps is worth notice.—R. P. HARPER (Scarborough).

Puffin inland in Norfolk. — Is it worth notification in 'The Zoologist' that a young Puffin, *Fratercula arctica*, was picked up exhausted, but not starved, at Tattesford, about ten miles distant from the north coast of Norfolk, on February 28th? The occurrence of this bird so far inland is remarkable, inasmuch as there was not, and had not been for several days,

any gale to drive it out of its course, the force of wind in this district not exceeding 8, *i. e.*, a wholesale breeze. At the same time I should tell you that I hear this morning of "many young Kittiwakes and Razorbills having been found dead or dying on our north coast during the last two weeks of February," which would seem to indicate the presence of severe weather somewhere in the North Sea.—E. W. DOWELL (Dunton Vicarage, Fakenham, Norfolk).

Birds flying against Window-panes. — The circumstance which Mr. Oxenden-Hammond mentions (p. 108) of birds killing themselves against house-windows is of constant occurrence here; during the summer time, I might safely say, of weekly occurrence, and I may add the Bullfinch and the female Sparrowhawk to Mr. Oxenden-Hammond's list, from my personal observation. The windows which are so fatal to birds in this house are the large plate-glass windows of one of the drawing-rooms, with a south aspect. It is only fair to the birds, however, to add that on one occasion a middle-aged gentleman attempted to perform the same feat, with the difference of doing it from within instead of from without, and I am glad to say that the strength of his neck and skull prevented the effects being so fatal, though I have no doubt the experience was sufficiently disagreeable.—E. W. HARCOURT (Nuneham Park, Abingdon).

Eared Grebe in Co. Waterford.—On Feb. 22nd I obtained from a man who had just shot it for me, on Dungarvan Bay, a fine specimen of this very rare species in Ireland, which I have sent to the Museum of Science and Art, Dublin. This, with the Long-tailed Duck (p. 103), and the Redstart (Zool. 1889, p. 455), makes three new species which have been lately added to the Co. Waterford list. The Eared Grebe is very much rarer in Ireland than the Slavonian Grebe, which I have obtained both from the coast and from an inland lake in King's County.—R. J. USSHER (Cappagh, Lismore).

Golden Oriole in Surrey: Honey Buzzard in Sussex.—During the last four years I have repeatedly seen a pair of Golden Orioles about here, and have no doubt they have been breeding. A friend of mine shot a Honey Buzzard close to East Grinstead last year. Nightjars are very common indeed around Bellaggio and East Grinstead, and especially Warlingham.—M. BURR (Bellaggio, Surrey).

Wheatear in North Lincolnshire in March.—On March 23rd I saw a Wheatear, still in winter plumage, in this parish. This is the earliest arrival I have ever noticed. Mr. Cordeaux, in his 'Birds of the Humber District, states that he has only twice observed this bird in March, namely, in 1867 on the 30th, and in 1871 on the 28th of the month. It was flitting about on the Humber "fitties," only a few yards in front of him;

therefore he had a good opportunity of observing it.—J. W. HARRISON (Goxhill, Lincolnshire).

The Birds of Ireland. — In 'The Zoologist' for 1884 (p. 187) an announcement appeared of a proposed Supplement to Thompson's 'Natural History of Ireland,' and contributions of information were invited from all those interested in the subject. Since that time a considerable amount of material has been accumulated by those who issued the above notice, and Mr. More has published a new edition (1890) of his 'List of Irish Birds,' to be obtained at the Museum of Science and Art, Dublin. But as by far the largest part of this material relates to the birds alone, it has been thought desirable, instead of going over the whole ground covered by Thompson's work, to publish in a separate form the information acquired relating only to the birds of Ireland. Previous, however, to putting this into its final shape, an effort is now made to ascertain the names of any other persons who are able to supply notes on Irish birds, and such persons are requested kindly to furnish any information they can on the subject at their earliest convenience to R. J. Ussher, Cappagh, Lismore, or to send their addresses to him for reference. — R. M. BARRINGTON; A. G. MORE; ROBERT WARREN; R. J. USSHER.

CRUSTACEA.

Rare Crabs in Cornwall.—I have to-day recovered from a trawler a specimen of *Inachus dorhynchus*. It is a small specimen, with a carapace just over one inch in length,—a female, with its spawn shed. There is nothing remarkable about it, except that its posterior excrescences resemble spines rather than tubercles; but collectors who have not scrubbed their specimens may well have been misled by the appearance of these spines in the midst of the mass of small fuci breaking up, through which they are first seen. It is a rare Crab in our Western Seas, and therefore I note it. Unfortunately the specimen is so knocked about as to be unfit for preservation. By the favour of Mr. G. T. Tregelles I recovered, on March 15th, from one trawler, which had been fishing in the deep water in the Bristol Channel, between Trevoze Head and Lundy Island, these specimens:—*Galathea strigosa*; *Inachus dorsettensis* (the Scorpion Spider Crab), two, both females, and laden with ripe berry; *Euronyma aspera*; *Stenorhynchus tenuirostris* (the Slender Spider Crab); *Ebalia Bryerii*, male and female. Except the *Galathea*, these are all of decidedly rare occurrence (or rather, it may be, observance) in our Western Seas.—THOMAS CORNISH (Penzance).

MOLLUSCA.

Description of a New Variety of *Limax flavus*, Linn. — Var. *lineolata*. Animal a very light yellow, ashy grey on the keel; tentacles

yellowish; each side of the body striped with a dark brown line, commencing faintly near the tentacles and converging on the keel; foot pale yellow. Locality: Hedge Banks, Nelthorpe, Banbury, Oxon. I am not aware of any previous record of such a variety as the above, banded forms of *flavus* being, I believe, very rare. Mr. T. D. A. Cockerell informs me that *Limax calendymus*, Bourg., from Madeira,—which he thinks is probably a variety of *L. flavus*,—exhibits an arrangement of the markings approaching banding, but is distinct from that for which the name *lineolata* is now proposed. I found the first specimen of it in a hedge bottom, and about a week afterwards I found another in a garden, with the band rather broader but less distinct.—W. E. COLLINGE, Hon. Assist. Curator Conch. Soc. (Springfield Place, Leeds).

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

March 6, 1890.—Mr. CARRUTHERS, F.R.S., President, in the chair.

Mr. S. Lithgow was admitted, and Messrs. J. Lowe, E. R. Waite, and G. F. Elliott were elected Fellows of the Society.

Mr. Thomas Christy exhibited a dried specimen of *Picramnia anti-desma*, the plant from the bark of which a medicine known as *Cascara amarga* is believed to be prepared, and which is a useful alterative in diseases of the blood and skin.

Mr. J. E. Harting exhibited a series of horns of the American Prong-buck (*Antilocapra Americana*), to illustrate the mode in which the shedding and new growth of horn is effected in this animal.

A paper was read by Mr. D. Morris, on the production of seed in certain varieties of the sugar-cane, *Saccharum officinarum*. It was pointed out that, although well known as a cultivated plant, the sugar-cane had nowhere been found wild; nor had the seed (*caryopsis*) been figured or described, it being the generally received opinion that having been propagated entirely by slips, or cuttings, it had lost the power of producing seed. Spikelets, however, received at Kew, had been carefully examined and the seed found, which was now for the first time exhibited by Mr. Morris. He anticipated that, by cross-fertilization and selection of seedlings, the sugar-cane might be greatly improved; and much importance was attached to the subject, as it opened up a new field of investigation in regard to sugar-cane cultivation, Mr. J. G. Baker and Mr. T. Christy concurred.

A paper was then read by Mr. Spencer Moore, on the true nature of *Callus*. Part I.—The Vegetable Marrow and *Ballia callitricha*. It was shown that the *callus* of sieve-tubes of the vegetable marrow gives marked

proteid reactions, and, since it is dissolved in a peptonising fluid, there can be no doubt of its being a true proteid, and not a kind of starchy mucilage as is usually supposed. The "stoppers" of *Ballia* also yield proteid reactions; but, inasmuch as they resist gastric digestion, the substance cannot be a true proteid, and may perhaps be allied to lardacein. Mr. Moore maintained the view of Russow, Strassburger, and others (that *callus* is deposited upon the sieve) to be correct in the case of the vegetable marrow, since a peptonising fluid clears the sieve plates and leaves them in their pristine condition, which would not be the case if *callus* were formed by a swelling up of the sieves.

A discussion followed, in which Dr. F. W. Oliver, Dr. D. H. Scott, Prof. Reynolds Green, and Mr. George Murray took part.

March 20.—Mr. W. CARRUTHERS, F.R.S., President, in the chair.

Mr. G. F. Scott Elliott was admitted, and Mr. H. E. Milner elected a Fellow of the Society.

After reading the Minutes of the last Meeting, the following Resolution was moved from the chair and unanimously adopted:—"On the occasion of a gift, from Mr. Crisp, of a handsome oaken table for the Meeting-room, the Society desires to record its deep sense of the valuable services rendered by that gentleman, not only as Treasurer, but by numerous acts which are not generally appreciated because they are practically unknown to the Fellows."

Prof. P. Martin Duncan, F.R.S., exhibited several specimens of *Desmophyllum cristagalli*, obtained from an electric cable at a depth of 550 fathoms. Though showing great variation in the shape and nature of the wall, the specific characters of the septa were maintained. The core extending as a thin lamina far beyond the peduncle, had no connection with the septa. A section of *Caryophyllia clavus* showed theca between the septa, and a section of *Lophohelia prolifera* exhibited a true theca extending beyond the septa.

Mr. E. B. Poulton exhibited some Lepidopterous larvæ, showing the variation in colour induced by natural surroundings; and some lizards in spirit, from the West Indies, showing the pineal eye very distinctly.

In continuation of a former paper on the external morphology of the Lepidopterous pupa, Mr. Poulton gave a detailed and interesting account of the sexual differences observed in the development of the antennæ and wings.

Prof. G. B. Howes read a paper on the intestinal canal of the Ichthyopsida, with especial reference to its arterial supply. He described certain arteries hitherto unrecorded, and some variations he had found in them in the Frog and Salamander. The artery known in the Elasmobranchii as the inferior mesenteric was shown to belong to the superior mesenteric

series. Discussing the morphology of the intestine and its derivatives in the light of the foregoing, the author defined the large intestine of the Pisces more precisely than had hitherto been done, and showed that the *appendix digitiformis* of the Elasmobranchs must be regarded as homologous with the *appendix vermiformis* of mammals, and that a short *cæcum coli* is present at any rate in the Batoidei. The anatomical relationships of the *appendix digitiformis* were described in certain Elasmobranchs for the first time, and some notes were added upon the cæcum and large intestine among Teleosteans.

An interesting paper was then read, by Mr. R. A. Grimshaw, on heredity and sex in the Honey Bee.

ZOOLOGICAL SOCIETY OF LONDON.

March 4, 1890.—Prof. W. H. FLOWER, C.B., LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of February.

Mr. F. E. Beddard exhibited and made remarks on some living specimens of an Indian earthworm, *Perichata indica*, obtained from a greenhouse in Scotland.

Mr. A. Thomson exhibited a series of insects reared in the Insect House in the Society's Gardens during the past year, and read a report on the subject. Particular attention was called to specimens of a South African Mantis, *Harpax ocellata*, and of a Canadian Stick-insect, *Diaphemora femorata*.

Mr. Henry Seebohm read a paper on the classification of birds, being an attempt to diagnose the subclasses, orders, suborders, and some of the families of existing birds. The characters upon which the diagnoses were based were almost entirely derived from points in the osteology, myology, and the pterylosis of the groups diagnosed.

A communication was read from Mr. T. D. A. Cockerell, describing some Galls from Colorado, of which specimens were transmitted for exhibition.

March 18 —Prof. FLOWER, C.B., LL.D., F.R.S., President, in the chair.

The Secretary exhibited (on behalf of the Rev. G. H. R. Fisk) a specimen of a white Bat, obtained at Somerset West, near Cape Town, believed to be an albino variety of *Vesperus capensis*.

Capt. Percy Armitage exhibited and made remarks on two heads of the Panolia Deer, *Cervus eldi*, obtained on the Sittang River, Burmah. One of these was of an abnormal form.

Mr. Sclater exhibited (on behalf of Mr. Robert B. White) examples of four species of Mammals, obtained in the Upper Magdalena Valley, in the department of Tolima, U.S. of Colombia.

Dr. Mivart read a paper on the South American *Canidae*. The author called attention to the difficulties in the way of the correct discrimination of these animals, and to what appeared to him to be the unsatisfactory character of some of Burmeister's determinations and descriptions. Forms to which the names *fulvipes*, *griseus*, *patagonicus*, *entrerianus*, *gracilis*, *retulus*, and *fulvicaudus* had been assigned were declared to be quite insufficiently discriminated from *Canis azara*. On the other hand, two very marked varieties, or possibly species, were noted and distinguished under the appellations *C. parvidens* and *C. urostictus*, the type of each of which was in the British Museum, both the skin and the skull extracted from it in each case.

Mr. R. I. Pocock read a revision of the genera of Scorpions of the family *Buthidae*, and gave descriptions of some new South-African species of this family.

Mr. F. E. Beddard read a paper on some points in the anatomy of the Condor, *Sarcorhamphus gryphus*.

A communication was read from Prof. R. Collett, containing the description of a new Monkey from North-East Sumatra, proposed to be called *Semnopithecus thomasi*.—P. L. SCLATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

March 5, 1890.—Capt. HENRY J. ELWES, F.L.S., Vice-President, in the chair.

Mr. G. H. Kenrick, of Edgbaston, Birmingham, and the Rt. Hon. Lord Rendlesham, of Rendlesham Hall, Suffolk, were elected Fellows.

Mr. C. G. Barrett exhibited a number of specimens of *Dianthecia carpophaga*, Bork., bred by Mr. W. F. H. Blandford from larvæ collected near Tenby, Pembrokeshire, on flowers of *Silene maritima*. He remarked that the series included a number of forms intermediate between *D. carpophaga* and *D. capsophila*, and established the fact that the latter is only a local variety of the former. Mr. W. H. B. Fletcher, Mr. Blandford, Mr. M'Lachlan, and the Chairman took part in a discussion as to the identity of the supposed species. Mr. Barrett further exhibited a specimen of *Dianthecia luteago*, var. *Barrettii*, Db., also bred by Mr. Blandford from a larva found at Tenby, and he remarked that the species had not previously been taken in England; also a specimen of *Botys mutualis*, Zell.,—a species widely distributed in Asia and Africa,—taken by Mr. C. S. Gregson near Bolton, Lancashire.

Mr. A. F. Griffith exhibited and made remarks on the following:—two specimens of *Myelois Pryerella*, taken in the London Docks in 1888, and, for comparison, a series of *M. ceratonix*; two specimens of *Penthina grevillana* and a series of *P. pralongana*, taken in Sutherlandshire, and, for comparison, a series of *P. sauciana*, var. *Staintonian*; also two specimens of a unicolorous variety of *Hypermeia angustana* from Horning, Norfolk.

Mr. H. Goss exhibited several abnormal specimens of *Arctia caja*, bred

last December. The object of the exhibition was to show the effect produced by forcing the larvæ, and subjecting them to unusual conditions. It was stated that the peculiarity of the colour of the hind wings of the female parent had not been transmitted to any of the offspring.

Mr. Blandford referred to two specimens of a species of *Cardiophorus*, from Tenby, which he had exhibited at the August meeting of the Society as *Cardiophorus cinereus*, and stated that subsequent investigation had led him to hand them to Mr. Champion for determination. Mr. Champion was of opinion that they did not belong to the same species; that one of them was *C. asellus*, Er., and the other, probably, *C. equiseti*, Hbst., a species new to this country.

Mr. C. J. Gahan read a paper entitled "New Longicornia from Africa and Madagascar."

Capt. Elwes read a paper entitled "On a new species of *Thymara* and other species allied to *Himantopterus fuscinervis*, Wesmael."

Dr. Sharp read a paper entitled "On some Water Beetles from Ceylon."

Mr. J. J. Walker communicated a paper entitled "Notes on Lepidoptera from the Region of the Straits of Gibraltar." Mr. F. Merrifield, Mr. B. G. Nevinston, Capt. Elwes, and Mr. G. Lewis took part in the discussion which ensued.

It was announced that papers had also been received from Mr. E. Meyrick, Prof. Westwood, and Mynheer P. C. T. Snellen, but in consequence of the lateness of the hour the reading of them was postponed to the next meeting.—H. Goss, *Hon. Sec.*

NOTICES OF NEW BOOKS.

The Fauna of British India, including Ceylon and Burma. Published under the Authority of the Secretary of State for India in Council. Edited by W. T. BLANFORD. BIRDS. Vol. I. By EUGENE W. OATES. London: Taylor and Francis. 1889.

In the 'Zoologist' for December last (p. 467), we noticed the two volumes on Fishes contributed to the present series, by the late Surgeon Francis Day. We have now to announce the publication of Vol. I. of the Birds of India, the preparation of which has been undertaken by Mr. Eugene W. Oates. His name will be familiar to our readers as that of the author of a very useful handbook in two vols. on the 'Birds of Burma,' and

of numerous papers in the now discontinued but valuable Indian Journal of Ornithology, 'Stray Feathers.'

We learn from the Editor's Preface that the number of species of birds to be described in three volumes, of which this is the first, exceeds those enumerated in Jerdon's 'Birds of India,' by *more than one half*, chiefly because Jerdon omitted the species inhabiting Ceylon, Sind west of the Indus, the Western Punjab, Hazàra, the Upper Indus Valley, north and north-west of Cashmir, Assam, Burma, and the intermediate countries (such as the Gáro, Khasi, and Naga Hills, Chittagong, Sylhet, Cachar, and Manipur), together with Andaman and Nicobar Islands, all of which are comprised within the limits of British India as accepted in the present publication. A large number of additional species have also been recorded, since Jerdon's work was published, from Sind, the Punjab, the North Western Provinces, Rajputana, and the Western Himalayas, the fauna of all of which has become better known within the last twenty-five years. The additional species from the Peninsula are far less numerous.

It would be scarcely possible to have better material than that which now exists for the preparation of a new work on the Birds of British India; for besides the very numerous contributions to Indian Ornithology which have been published since the date of Jerdon's work, the finest collection in the world of Indian Birds is now to be found at the British Museum. Here during the last few years the private collections of Messrs. Hume (60,000 birdskins), Gould, and the late Marquis of Tweeddale, have been added to those of Col. Sykes and Mr. Hodgson, of Nepal; so that in all probability there is not a single species of which there are not some, perhaps several, specimens available for examination. Under these circumstances it was evident that the work now in hand could only be completed in London, and it is fortunate for ornithological science that Mr. Oates has been able to arrange for a prolonged stay in England in order to work uninterruptedly at the British Museum.

Looking at the first instalment of his publication now before us, the first thing that strikes us is an alteration in the scheme of classification to which of late years we have become accustomed, and in which the family *Turdidæ*, in the Order Passeres, has headed the Class Aves. Mr. Oates prefers to commence

with the *Corvidæ*, between which and the Thrushes he interposes the Babblers, Nuthatches, Drongos, Creepers, Warblers, Shrikes, Orioles, Starlings, and Flycatchers, and the Thrushes are not reached in the present volume; the Indian Passerine families which succeed them being the Weavers, Sunbirds, Swallows, Finches, Wagtails, Larks, and Pittas or Ground Thrushes. From this it will be seen that considerable changes have been made in the arrangement of this Order; whether such changes are for the better, we are not, without further consideration, prepared to say. At first sight it is somewhat startling to find the Tits constituted a subfamily (*Parinæ*) of the *Corvidæ*; the Drongos separated from the Shrikes by the Warblers; and the Finches, Wagtails, Larks, and Pittas, interposed with other families between the Swallows and Swifts, which the most recent researches, by Dr. Shufeldt, have shown to be so nearly related.

Vol. I. takes us to the end of the *Sturnidæ*, in which family we find the Mynas; the Grackles being placed in a separate family, *Eulabetidæ*, next to the Orioles. In this volume of 544 pages, no less than 556 species of birds are dealt with, from which it will be seen that they are very briefly treated, the more so because in the same number of pages, 163 text cuts (chiefly the heads of birds) have been introduced, and these of course still further reduce the space at disposal.

The plan adopted by Mr. Oates is to give the scientific name of the species in clarendon type, followed by the English name in italic; a brief synonymy, with the native names if known. Next the coloration and dimensions, distribution and habits, the remarks under the latter head seldom occupying more than half a dozen lines, often much less.

One of the most useful features in the volume is the "Key to the Species," which in most cases follows the diagnosis of each genus, unless, as in the case of the genus *Regulus*, there is but one species to be noticed. Of this genus our familiar Goldcrest is the sole representative to be found in British India. We should have expected to find it placed much nearer to the genus *Phylloscopus*, considering its resemblance to such species as *P. proregulus*, and *superciliosus*; but Mr. Oates separates them by interposing the Reed and Bush Warblers, Tailor-birds and Fantails, whose relationship, both as regards structure and habits, strikes us as being much more distant.

